Amplify Science

New York City

Guided Planning and Support Session

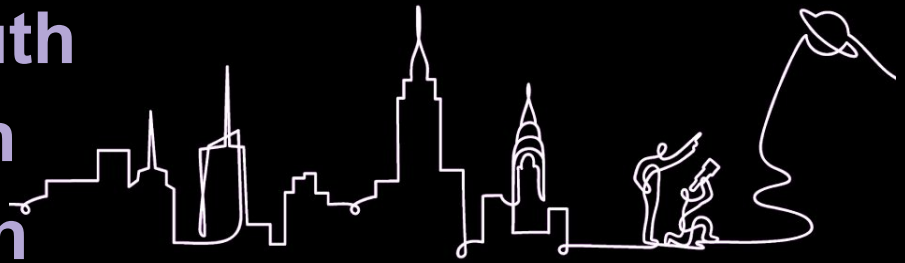
Grade 7 Phase Change

Who's in the Room?

Represent your Borough!

Share your name, role, borough.

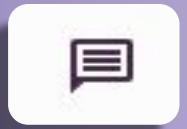
1- Brooklyn North
2- Brooklyn South
3- Queens North
4- Queens South
5- The Bronx
6- Staten Island



Workshop Norms

- Please keep your camera on, if possible.
- Take some time to orient yourself to the platform

- Mute your microphone to reduce background noise unless sharing with the group



- The chat box is available for posting questions or responses to during the training

- Make sure you have a note-catcher present

- Be an active participant - chat, ask questions, discuss, share!

Workshop Goals

- Explore and begin internalizing the the Populations and Resources Unit
- Build your facility with the digital features and student supports of the unit
- Develop a plan for implementing the core unit within your class schedule and instructional format

During this Session

We will visit and explore:

1. The Amplify Science NYC Resources site
2. The Amplify Science Digital Teacher's Guide
3. The Amplify Science NYC Program Guide
4. The Amplify Science Program Hub

Plan for the day

- **Amplify Science NYC**
- Guided Unit Planning
- Guided Lesson Planning
- Additional Resources
- Reflection and closing

Questions
Reflections
Connections

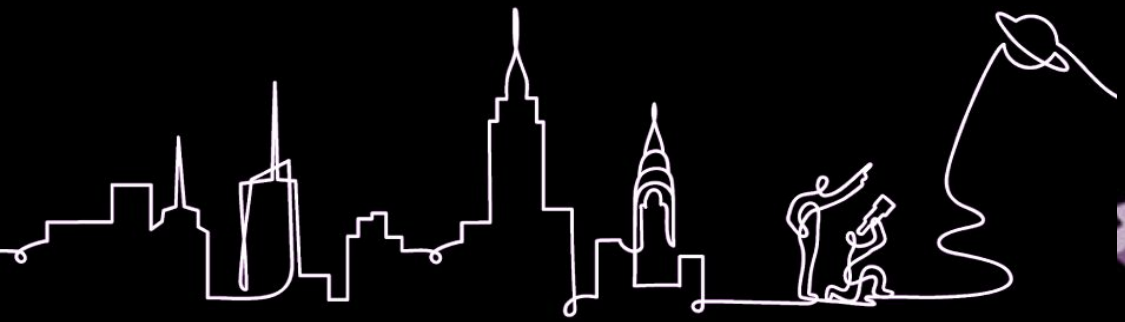
Planning Notes

Note Taking Opportunities

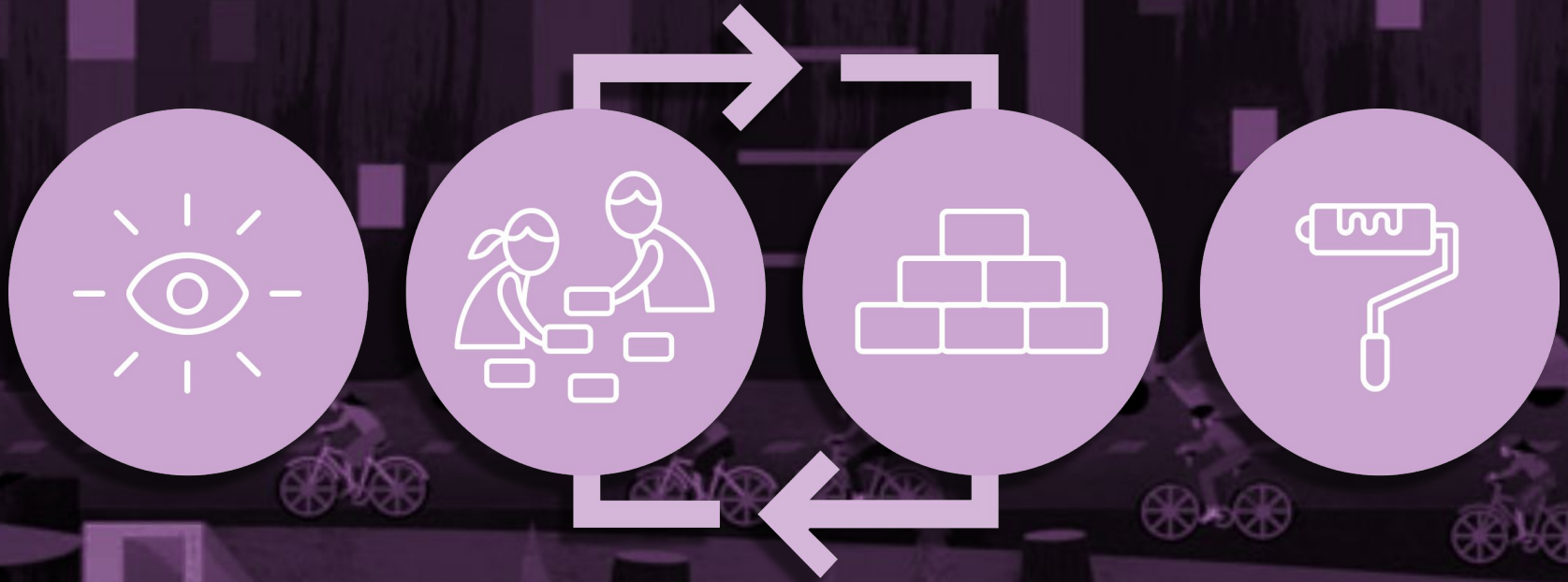
A version of this presentation will be available to you. However, you may want to record some of the presenter's comments and suggestions from your colleagues!

Reflect and Share

When you begin planning for an Amplify Science Unit, which resources do you use first and most often?



Revisiting
The Amplify Science approach



Problem-based deep dives

Students inhabit the role of scientists and engineers to explain or predict phenomena. They use what they figure out to solve real-world problems.

The approach

Introduce a phenomenon/real world problem

Collect evidence from multiple sources

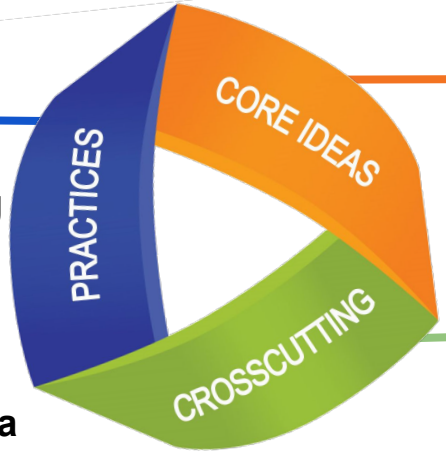
Build increasingly complex explanations

Apply knowledge to solve a different problem

NGSS/NYSSLS 3D

What scientists do
Science and Engineering Practices

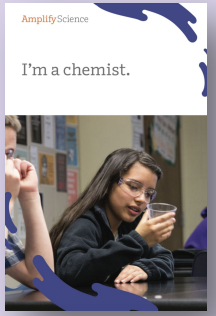
1. Asking questions and defining problems
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations and designing solutions
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

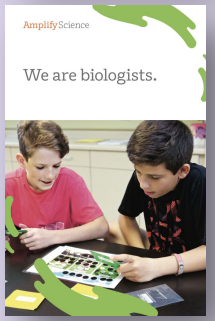


What scientists want to know
Disciplinary Core Ideas

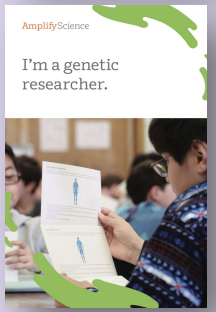
How scientists make sense of, organize and connect...
Crosscutting Concepts

- patterns
- cause and effect
- scale, proportion, and quantity
- systems and system models
- energy and matter
- structure and function
- stability and change





Amplify Science offers students the opportunity to engage in **Problem-based** deep dives that **empower** them to inhabit the role of scientists and engineers to explain or predict phenomena. They use what they figure out to solve real-world problems.



Amplify Science NYC 21-22 Three types of Units

Launch units

11 Lessons

Opportunities for students to extend their scientific thinking and practices outside the traditional realms of the science classroom.

Launch Units

Introduces practices

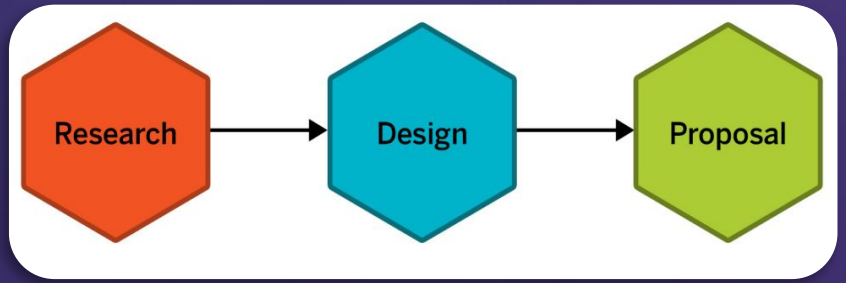
Scientific Argumentation

- **Active Reading**
- **Writing**
- **Talking about science ideas**
- **Using Amplify Science Tools**

Engineering Internship Units

10 lessons each

- Students take on the role of interns for the fictional Futura company
- Designing solutions for urgent real-world problems
- Apply and deepen learning from Core Units while cultivating students' responsibility to help others
- Teacher communicates through Futura Workspace



Core Units

19 lessons

- Students work to figure out the unit's anchoring phenomena.

- Students gain an understanding of the unit's DCI's utilizing SEP's and CCC's.

- Unit culminates with a Science Seminar: Students apply their learning from the unit to a new real-world problem

Partnership: Amplify-LHS-NYC DOE

AmplifyScience AmplifyScience NYC Edition

NGSS + Companion Lessons NYSSLS


Questions?

Amplify Science Chat Race

Type the letter for your answer to the questions you see here in chat!

A Type letter A in Chat

C Type letter C in Chat

B Type letter B in Chat

D Type letter D in Chat

What are the multiple modalities?

A. Do, talk, read, write, visualize

C. Do, visualize, hands-on projects

B. Read, write, google search

D. Reading, writing, math

Where can you find login information and NYC scope and sequence?

A. On the NYC Resource Site

C. In the offline preparation guide

B. The Program Hub

D. The TG on the Unit Level

Where can you find the mandatory NYC companion lessons?

A On the NYC Resource Site

B The Program Hub

C In the offline preparation guide

D The TG on the Unit Level

New York City Resources site

Amplify Science
Resources for NYC (6-8)

—

Welcome! This site contains supporting resources designed for the New York City Department of Education Amplify Science adoption for grades 6–8.

THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

Amplify.

No Login Required:
Bookmark this website!

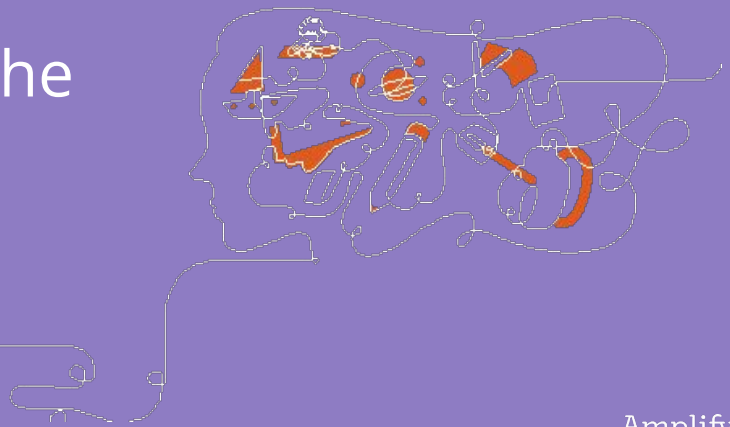

Questions?

Plan for the day

- Amplify Science NYC
- **Guided Unit Planning**
- Guided Lesson Planning
- Additional Resources
- Reflection and closing

What is phenomenon-based instruction?

A scientific **phenomenon** is an **observable event** that occurs in the universe that we can use science ideas to explain or predict.

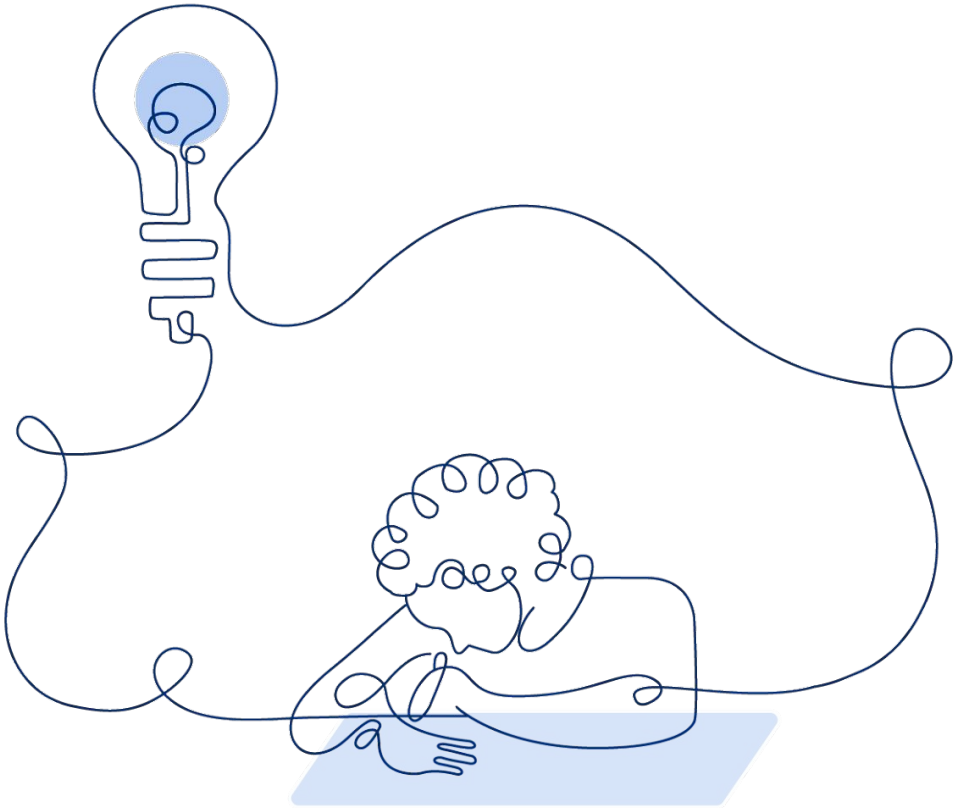


Previewing the unit

Introducing the phenomenon

Amplify Science units are designed around complex phenomena that drive student learning through the unit.

Pay attention to the phenomenon, or observable event, students will figure out in your unit.




Phase Change
AmplifyScience

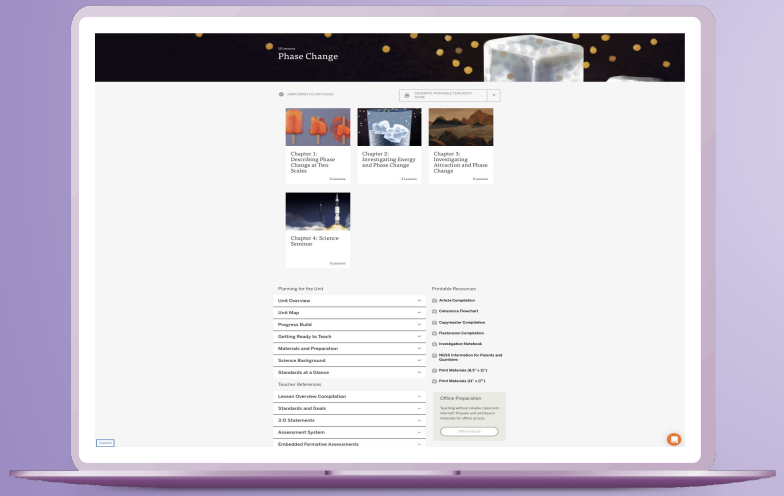
I'm a Chemist!

Taking on the role of student chemists working for the fictional Universal Space Agency (USA), students investigate the mystery of a disappearing methane lake on Titan (see unit map).

Phase Change

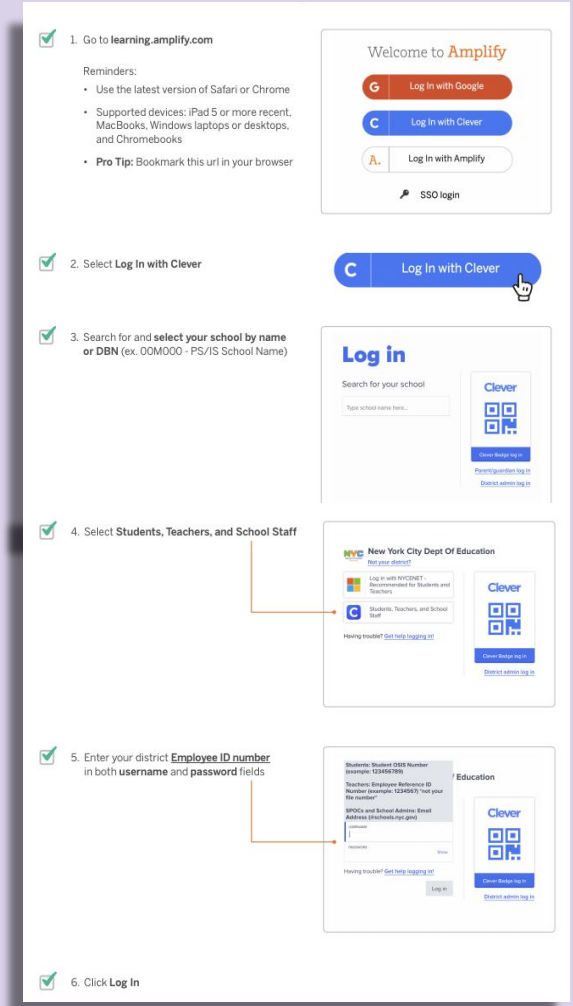
Anchor Phenomenon: Images taken by a space probe show that a methane lake on Titan disappeared.

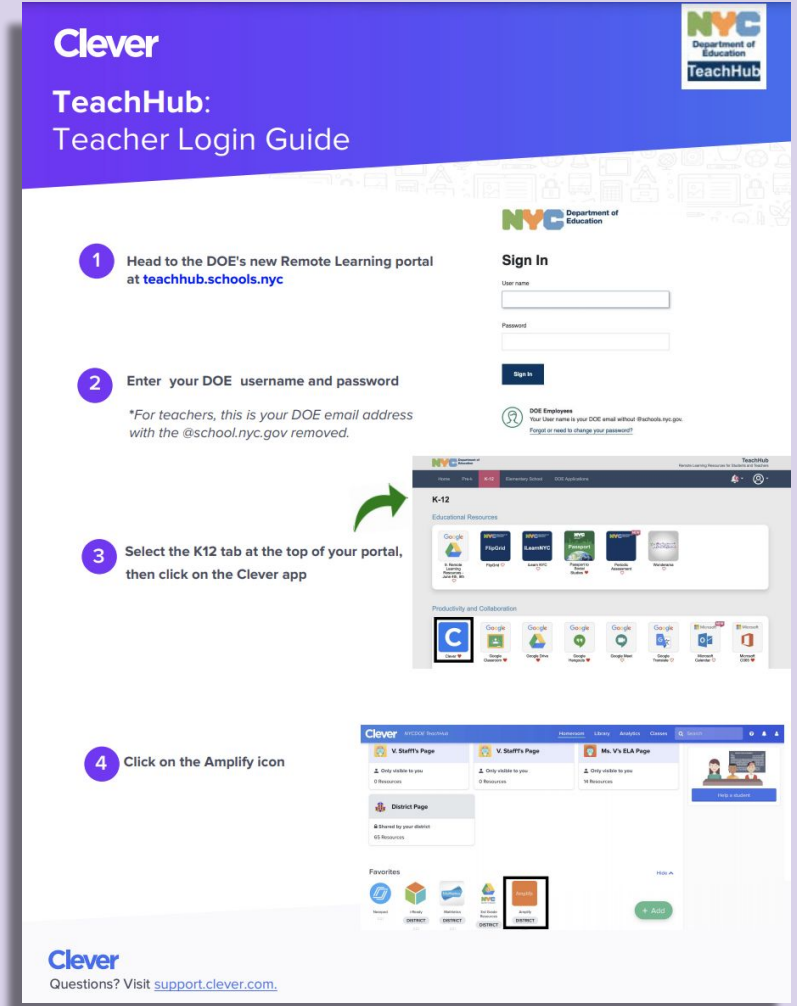
Digital Teacher's Guide



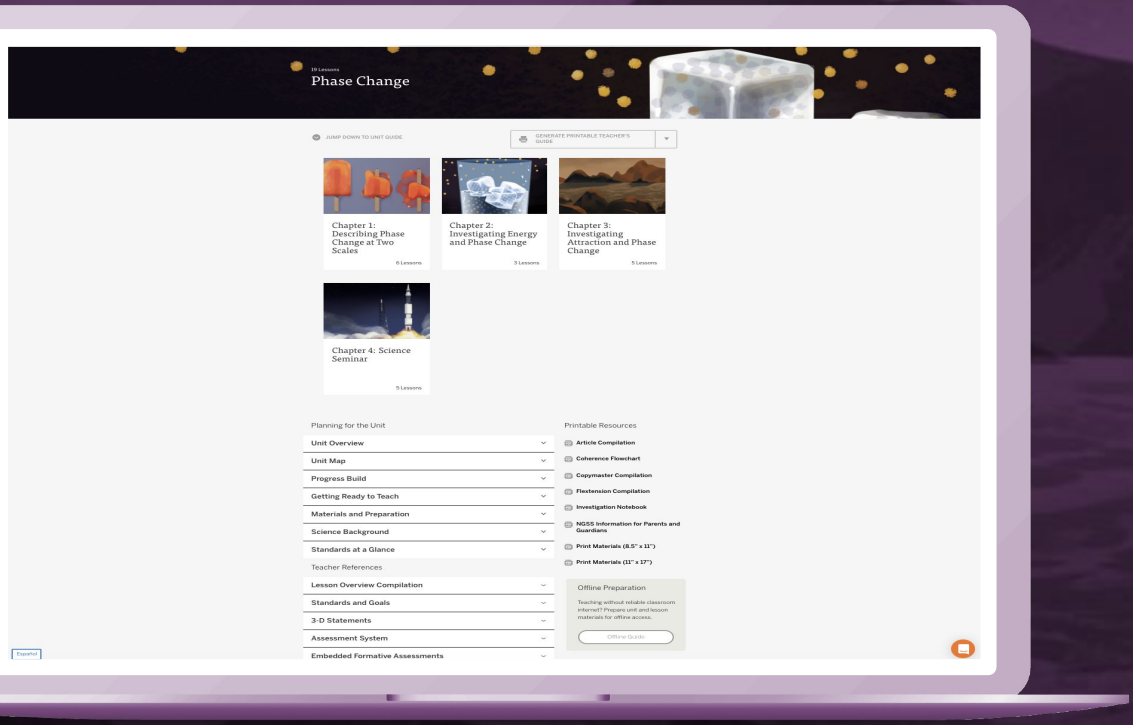
Amplify.

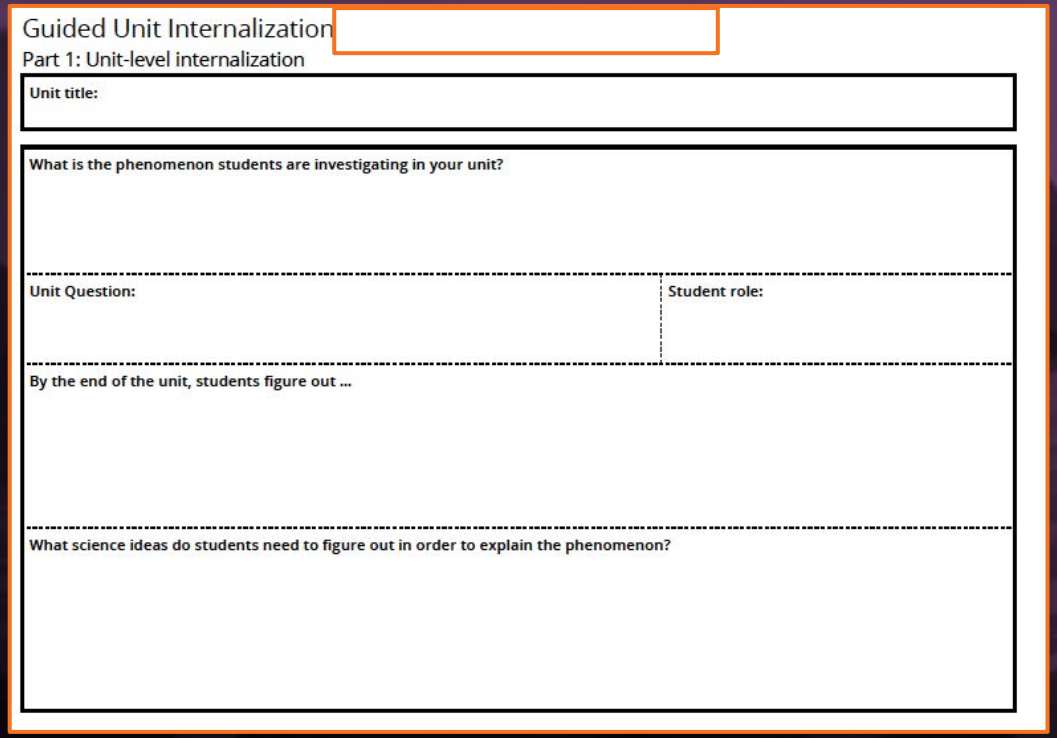
Login to Your Digital Teacher's Guide





Guided Navigation Unit Level





Guided Unit Internalization

Part 1: Unit-level internalization

Unit title:

What is the phenomenon students are investigating in your unit?

Unit Question:

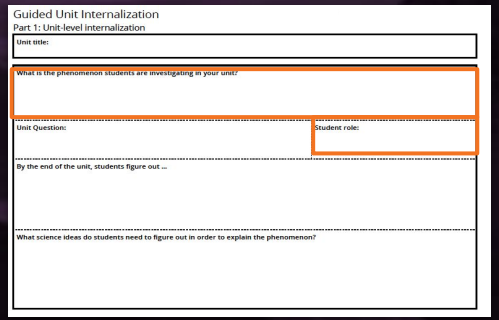
Student role:

By the end of the unit, students figure out ...

What science ideas do students need to figure out in order to explain the phenomenon?

Guided Unit Internalization Document

What is the student role? What will students figure out in Chapter 1?



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Planning for the Unit

- Unit Overview
- Unit Map
- Progress Build
- Getting Ready to Teach
- Materials and Preparation
- Science Background
- Standards at a Glance

Teacher References

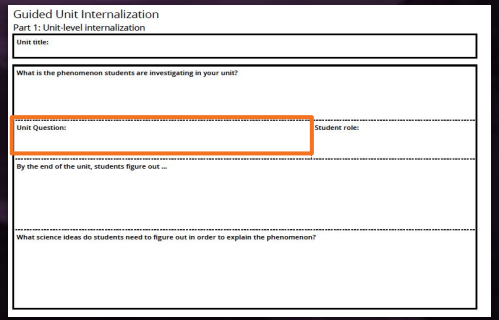
- Lesson Overview Compilation

Printable Resources

- Article Compilation
- Coherence Flowchart
- Copymaster Compilation
- Flextension Compilation
- Investigation Notebook
- NGSS Information for Parents and Guardians
- Print Materials (8.5" x 11")
- Print Materials (11" x 17")

Offline Preparation

What are the Unit and Chapter Questions ?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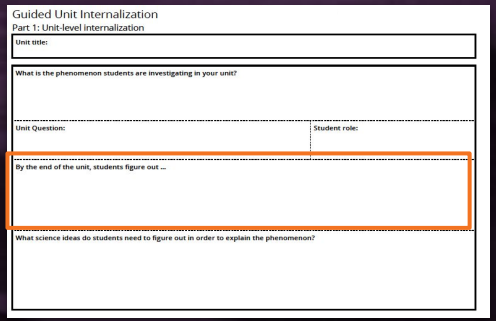
Offline Preparation

By the end of the unit what will the students figure out?



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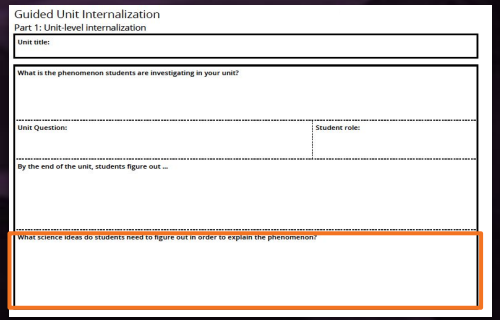
Offline Preparation

What science concepts do students need to figure out in order to build an explanation of the unit phenomena?



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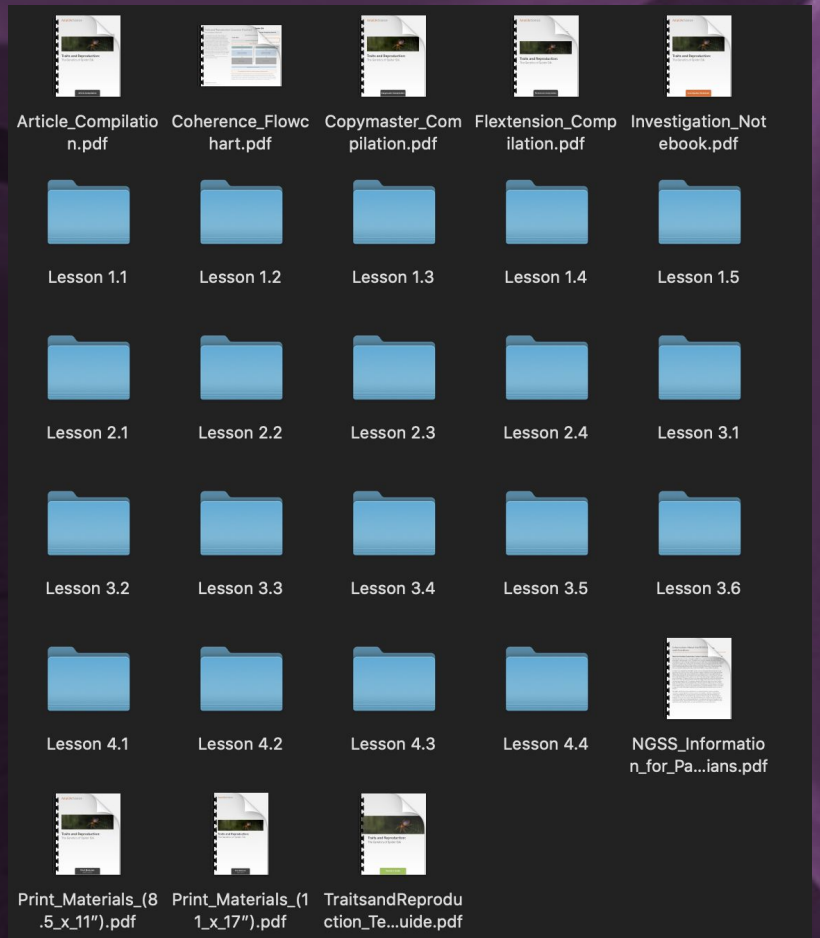


Planning Tip!

Remember to Download the Offline Guide Materials

Guided Unit Internalization

Part 1: Unit-level internalization

Unit title:

What is the phenomenon students are investigating in your unit?

Unit Overview

Unit Question:

Lesson Overview Compilation

Student role:

Unit Overview

By the end of the unit, students figure out ...

Unit Map, See also Progress Build

What science ideas do students need to figure out in order to explain the phenomenon?

Unit Map, Progress Build, Science Background Document

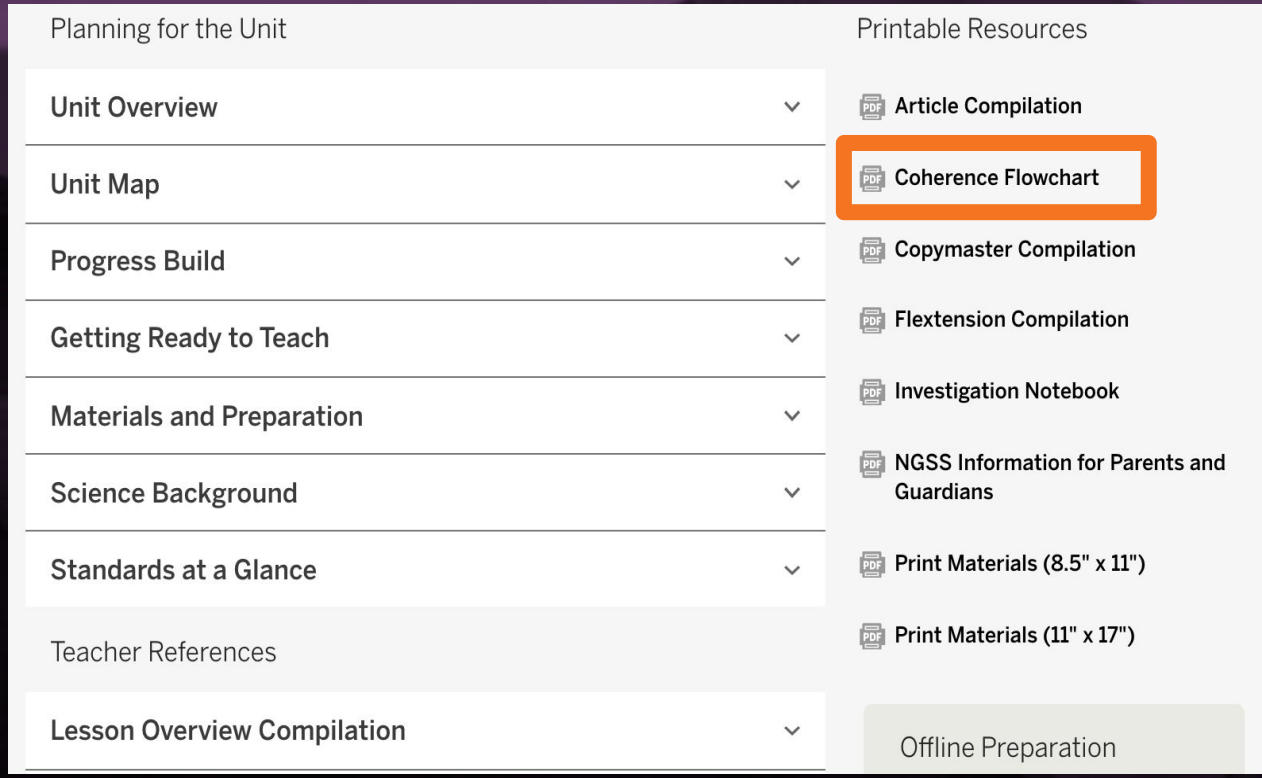
Where to Look!

Reflect-Type-Chat! Share and Learn

In two sentences or less, what do students figure out by the end of the unit?


Questions?

Planning Document Where is the Coherence Flowchart?



Phase Change: Titan's Disappearing Lakes

Problem students work to solve

Why did the methane lake on Titan disappear?

Chapter 1 Question

What happened to the liquid in Titan's lake?

Investigation Questions

How does the appearance of a substance change when it changes phase? (1.2)

What happens to the molecules of a substance when it changes phase? (1.3-1.6)

Evidence sources and reflection opportunities

- Observe phase change videos (1.2)
- Discuss the properties of substances in different phases using unit vocabulary (1.2)

- Observe evaporation and condensation and draw predictions of what a solid, liquid, and gas looks like at the molecular scale (1.3)
- Use the Sim to investigate phase changes at the molecular scale (1.3)
- Read an article from *Weird Water Events* (1.4)
- Revisit an excerpt from *Weird Water Events* (1.5)
- Use the Modeling Tool to show what happens to an ice pop when it melts (1.5)

Key concepts

- A solid holds its shape and does not take the shape of its container. (1.2)
- A gas has no visible shape and fills its container. (1.2)
- A liquid flows and can take the shape of its container. (1.2)

- A solid keeps its shape because its molecules only move in place, not around each other. (1.5)
- A liquid can flow because its molecules move around, not away from each other. (1.5)
- A gas does not have a visible shape because gas molecules can move away from each other. (1.5)
- A phase change is when the molecules that make up a substance experience a change to their freedom of movement. This phase change involves a macro-scale change in appearance. (1.5)

Application of key concepts to problem

- Use the Modeling Tool to show what would happen if the lake on Titan froze or evaporated and write a short explanation to support each model (1.6)

Explanation that students can make to answer the Chapter 1 Question

The methane lake on Titan began as a liquid. The liquid methane could flow because the molecules can move around one another, but not apart from one another. If the lake froze, the liquid methane would become a solid. Solid methane would keep its shape because the molecules in a solid can only move in place, but they cannot move around one another or apart. If the lake evaporated, the liquid methane would have become a gas. Methane gas would not have a visible shape because gas molecules can move away from one another.

Skim the Chapter 1 Coherence Flowchart.

Think about how you might use the Coherence Flowchart to summarize learning throughout Chapter 1.

Planning for Digital Apps

Read the Apps in your Unit Section of the Teacher References

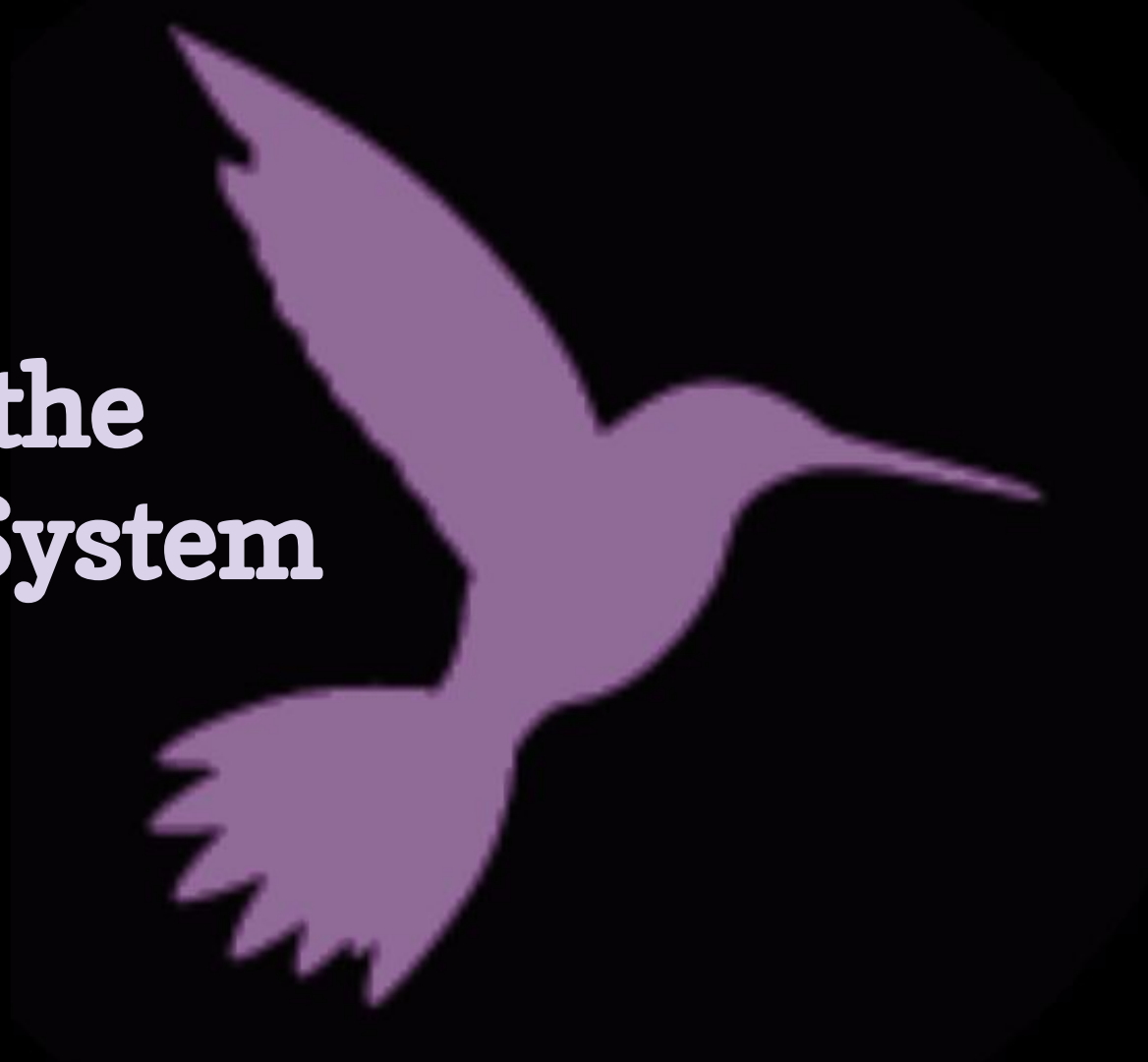
Teacher References

- Lesson Overview Compilation
- Standards and Goals
- 3-D Statements
- Assessment System
- Articles in This Unit
- Apps in This Unit

Press on a molecule to track it. You can also track two molecules at once.

Using the print version? Watch the video at tinyurl.com/AMPPC-15

Planning for the Assessment System



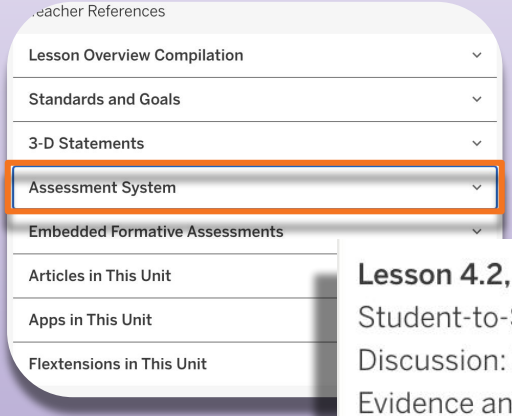
Progress Build

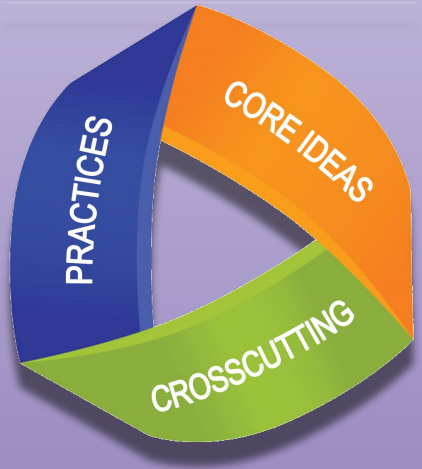
The unit's Progress Build describes the way students' explanatory understanding of the unit's focal phenomena is likely to develop and deepen over the course of a unit. It is an important tool in understanding the structure of a unit and in supporting students' learning: it organizes the sequence of instruction (generally, each level of the Progress Build corresponds to a chapter), defines the focus of assessments, and grounds the inferences about student learning progress that guide suggested instructional adjustments and differentiation.

Teacher References

- Lesson Overview Compilation
- Standards and Goals
- 3-D Statements
- Assessment System
- Embedded Formative Assessments
- Books in This Unit
- Apps in This Unit
- Flextensions in This Unit

3-D Assessment Connections





Lesson 4.2, Activity 3:
Student-to-Student Discussion: Discussing Evidence and Claims

Assessment Type:
On-the-Fly Assessment

Evaluation Guidance:

- Look for/Now What? notes

DCI:

- LS4.A: Evidence of Common Ancestry and Diversity

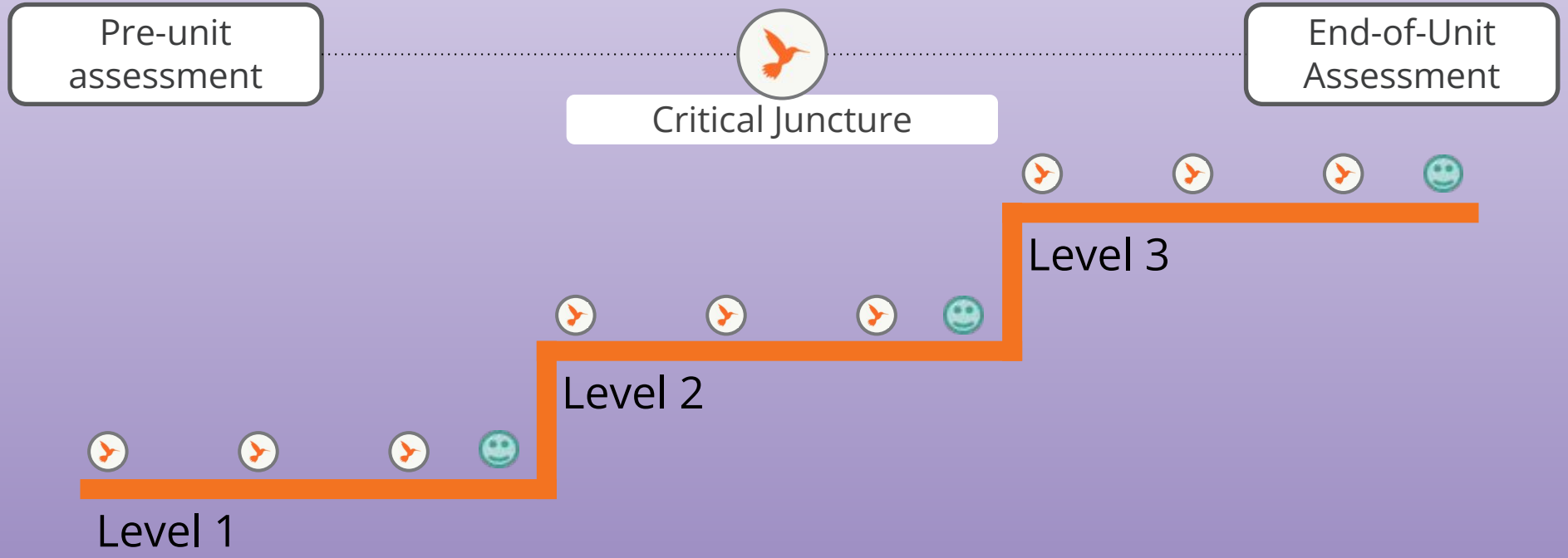
SEPs:

- Practice 4: Analyzing and Interpreting Data
- Practice 7: Engaging in Argument from Evidence
- Practice 8: Obtaining, Evaluating, and Communicating Information

CCC:

- Stability and Change

6-5 Assessment System



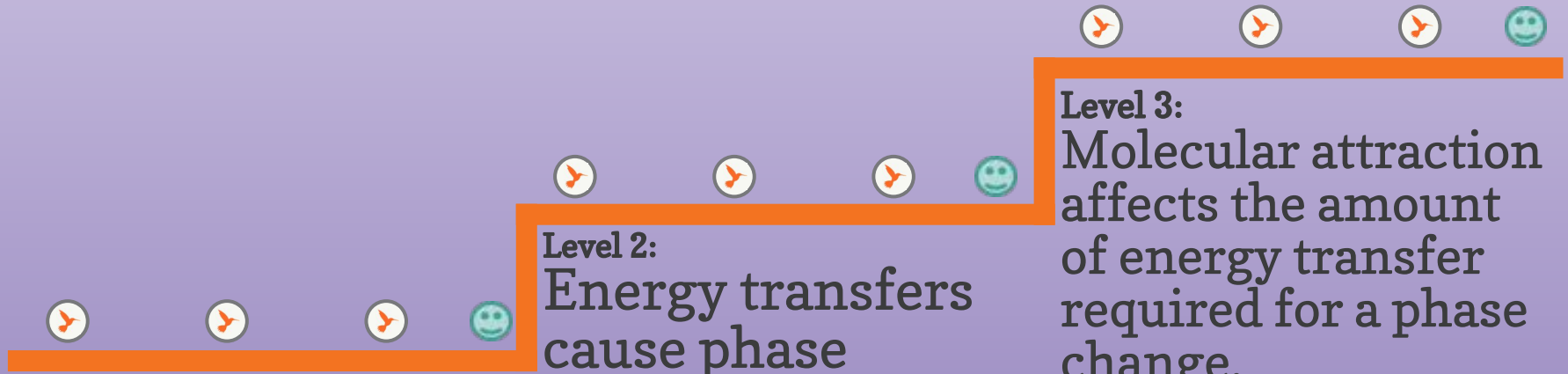
G7 Phase Change

1.1

Pre-unit assessment

Critical Junctures

End-of-Unit Assessment



Level 1:
When a substance changes phase, the freedom of movement of its molecules has changed.

Level 2:
Energy transfers cause phase changes.

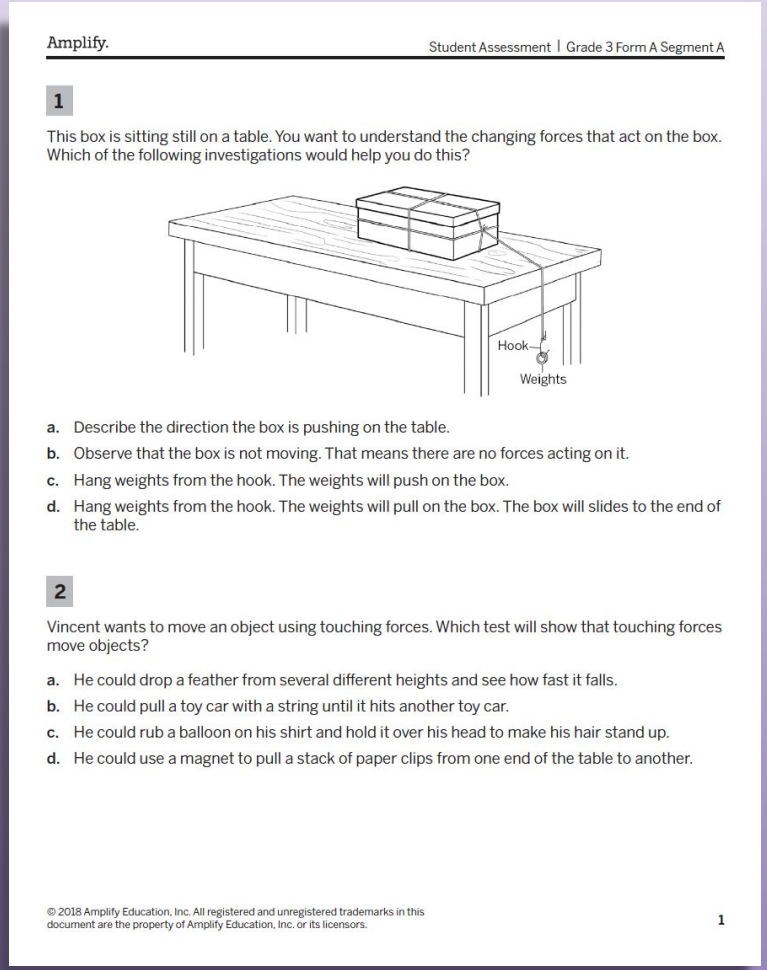
Level 3:
Molecular attraction affects the amount of energy transfer required for a phase change.

Benchmark Assessments

- Grades 3-8
- 4 Benchmarks per grade
- 14-15 items perform

Click to open Benchmark Assessment site

Benchmark Assessments



Amplify. Student Assessment | Grade 3 Form A Segment A

1

This box is sitting still on a table. You want to understand the changing forces that act on the box. Which of the following investigations would help you do this?

a. Describe the direction the box is pushing on the table.
b. Observe that the box is not moving. That means there are no forces acting on it.
c. Hang weights from the hook. The weights will push on the box.
d. Hang weights from the hook. The weights will pull on the box. The box will slides to the end of the table.

2

Vincent wants to move an object using touching forces. Which test will show that touching forces move objects?

a. He could drop a feather from several different heights and see how fast it falls.
b. He could pull a toy car with a string until it hits another toy car.
c. He could rub a balloon on his shirt and hold it over his head to make his hair stand up.
d. He could use a magnet to pull a stack of paper clips from one end of the table to another.

Amplify.

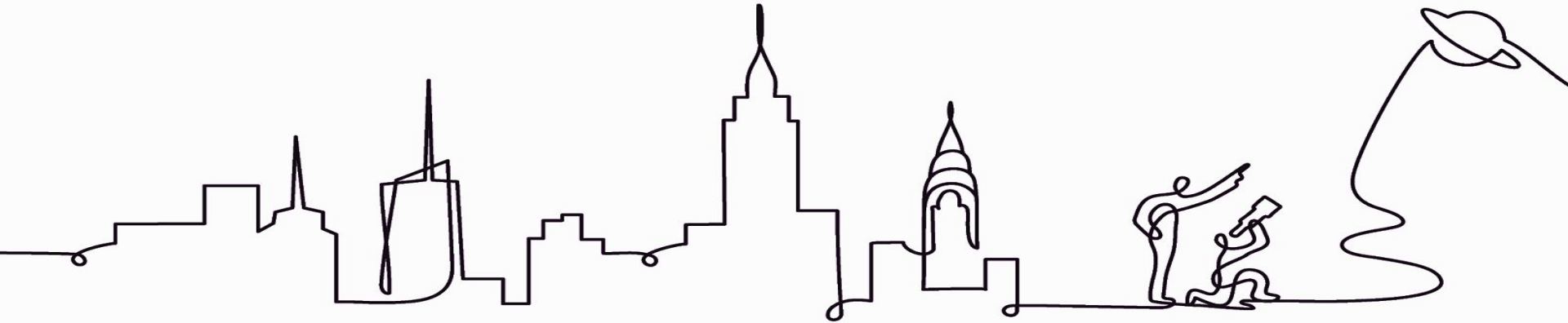
Plan for the day

- Amplify Science NYC
- Guided Unit Planning
- **Guided Lesson Planning**
- Additional Resources
- Reflection and closing

Guided Lesson Exploration and Planning

Differentiation

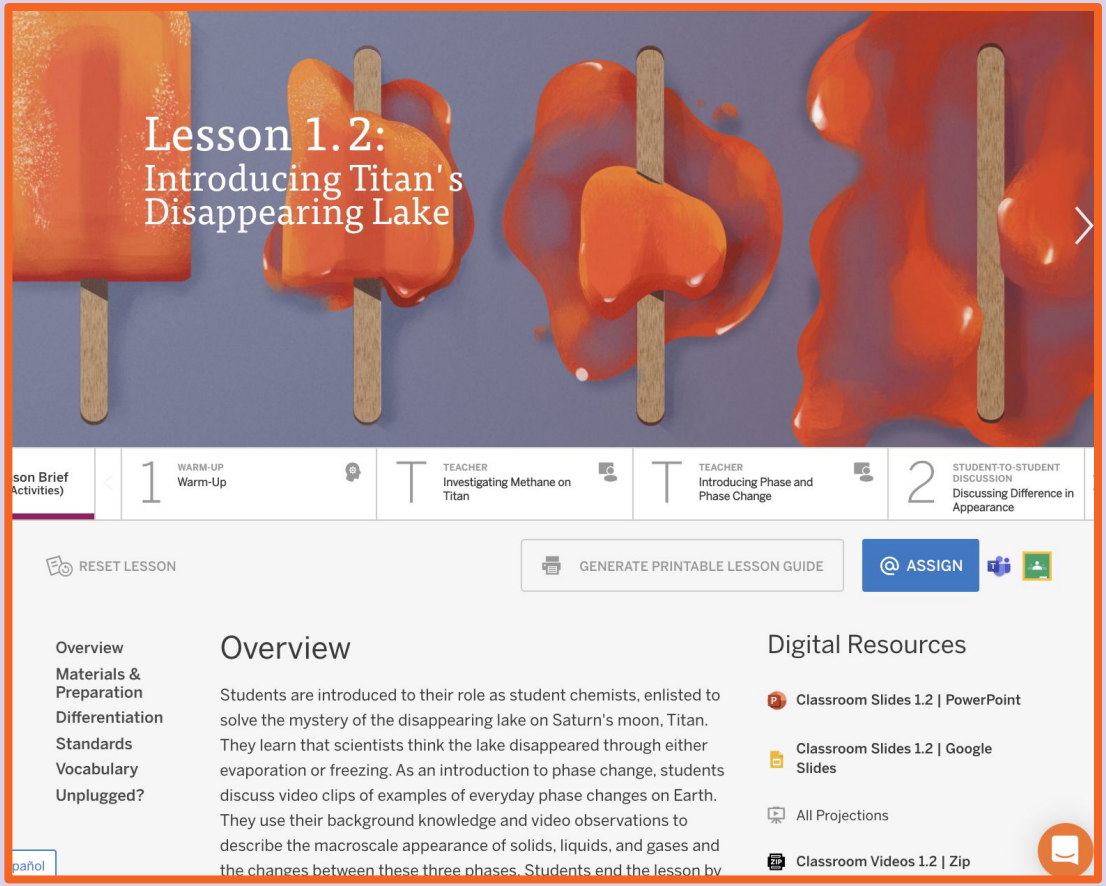
Quick Review of Lesson Level Brief



Lesson Exploration

Use the Lesson Brief for:

1. information about lesson timing
2. materials and preparation
3. differentiation suggestions
4. Digital Resources



Science Seminar

Considering claims and evidence

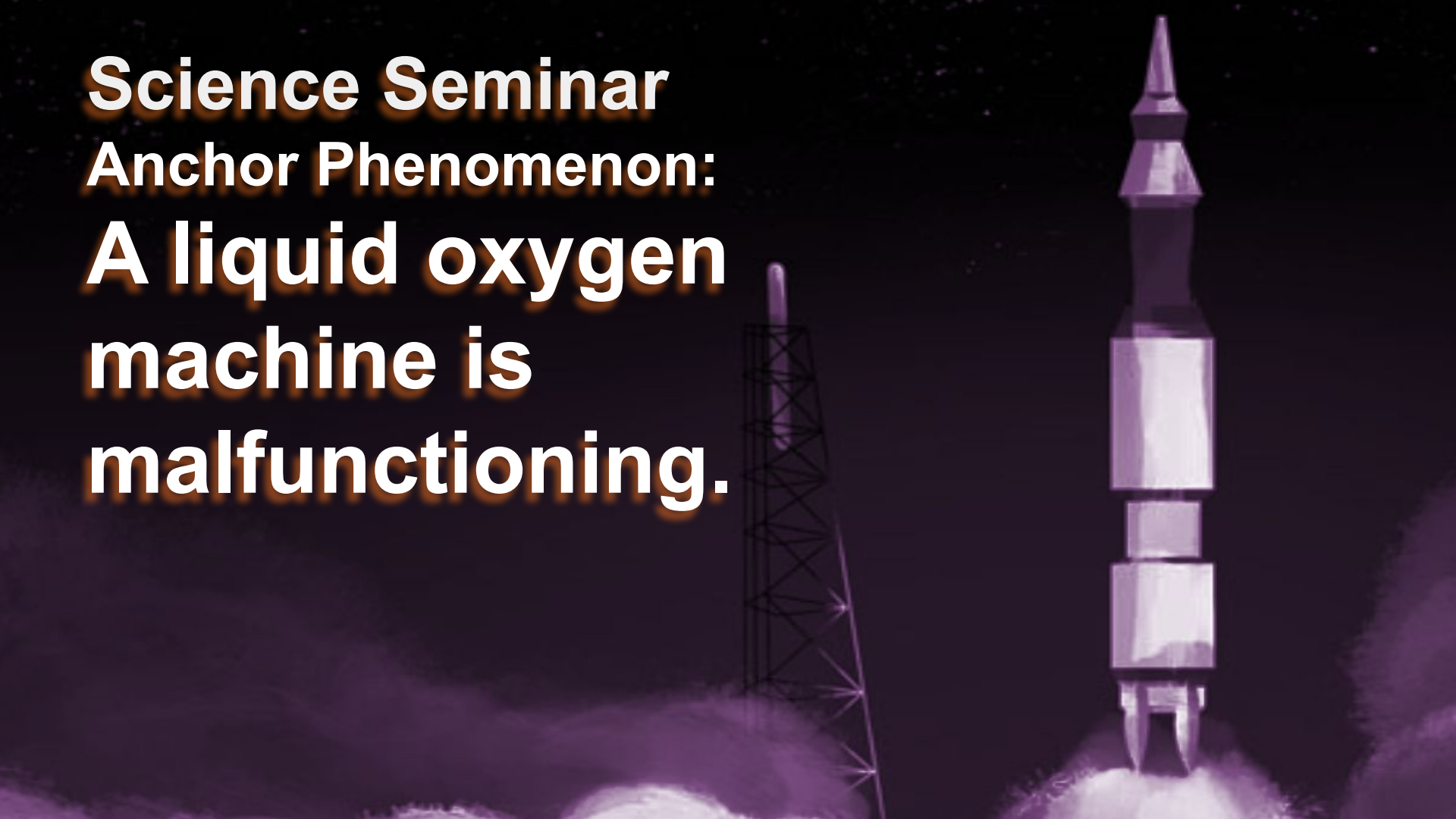
Participating in the Science Seminar

Writing an argument

Science Seminar

Anchor Phenomenon:

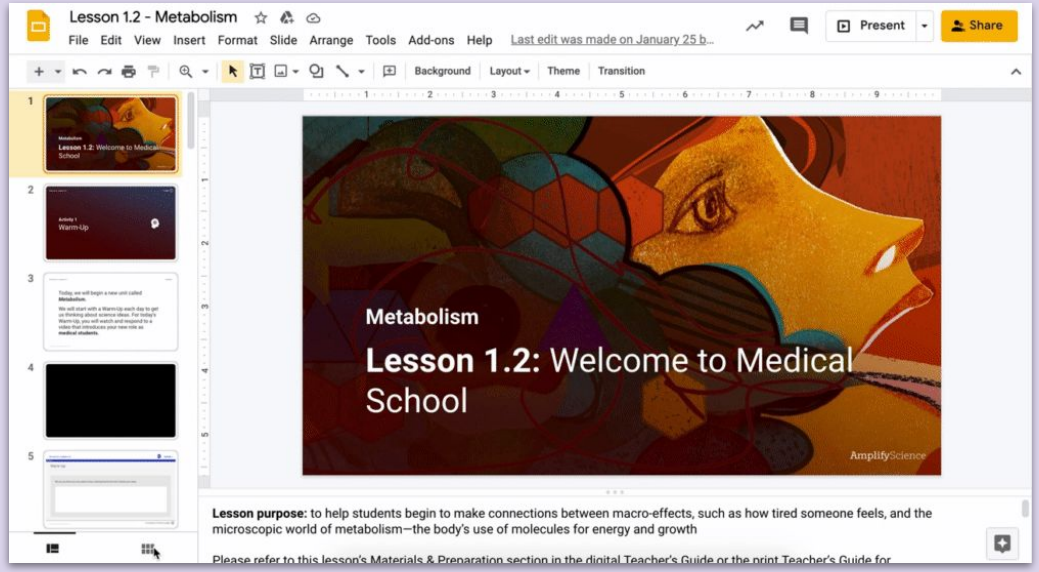
A liquid oxygen machine is malfunctioning.



Using Classroom Slides as a planning tool
Focus: Science Seminar

Teacher tip: Classroom Slides are a great visual summary of a lesson. Many teachers download and flip through a lesson's Classroom Slides deck to preview what happens in the lesson.

Download and use the slides to review the science seminar lessons in your unit. Record your planning observations/notes!

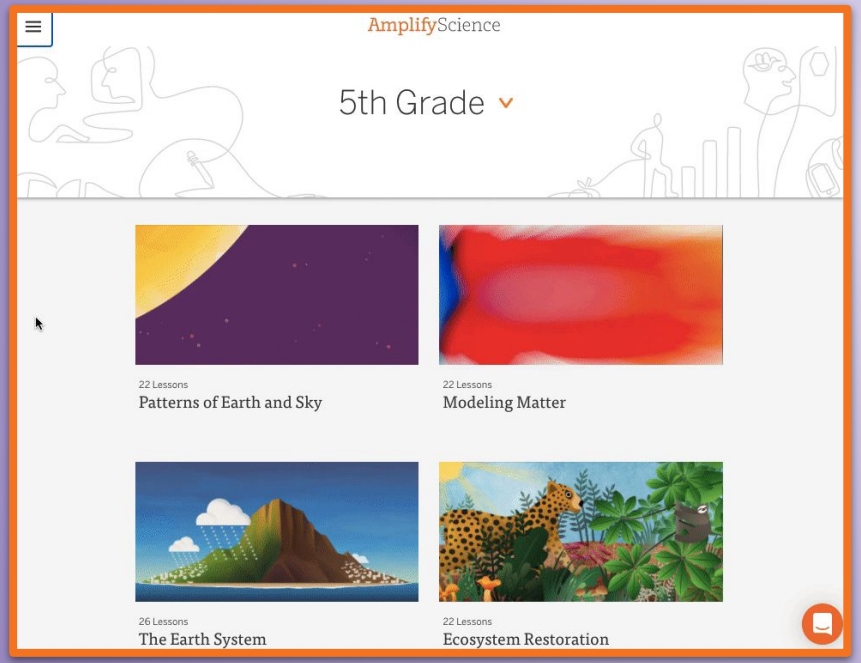



Questions?

Plan for the day

- Amplify Science NYC
- Guided Unit Planning
- Guided Lesson Planning
- **Additional Resources**
- Reflection and closing

The Program Hub with supplemental and self study resources

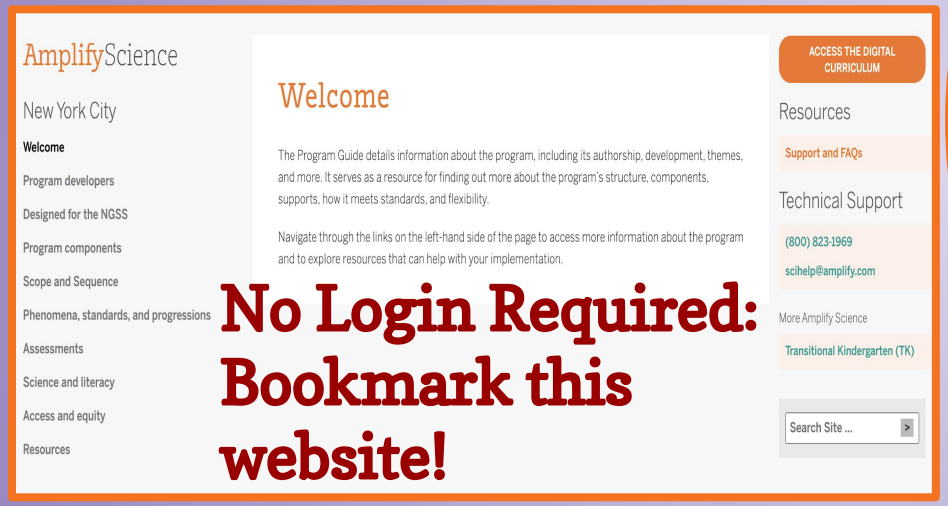


Amplify.

Reflect-Type-Chat! Share and Learn

Which self-study resource on the Program-Hub will you use most often and why?

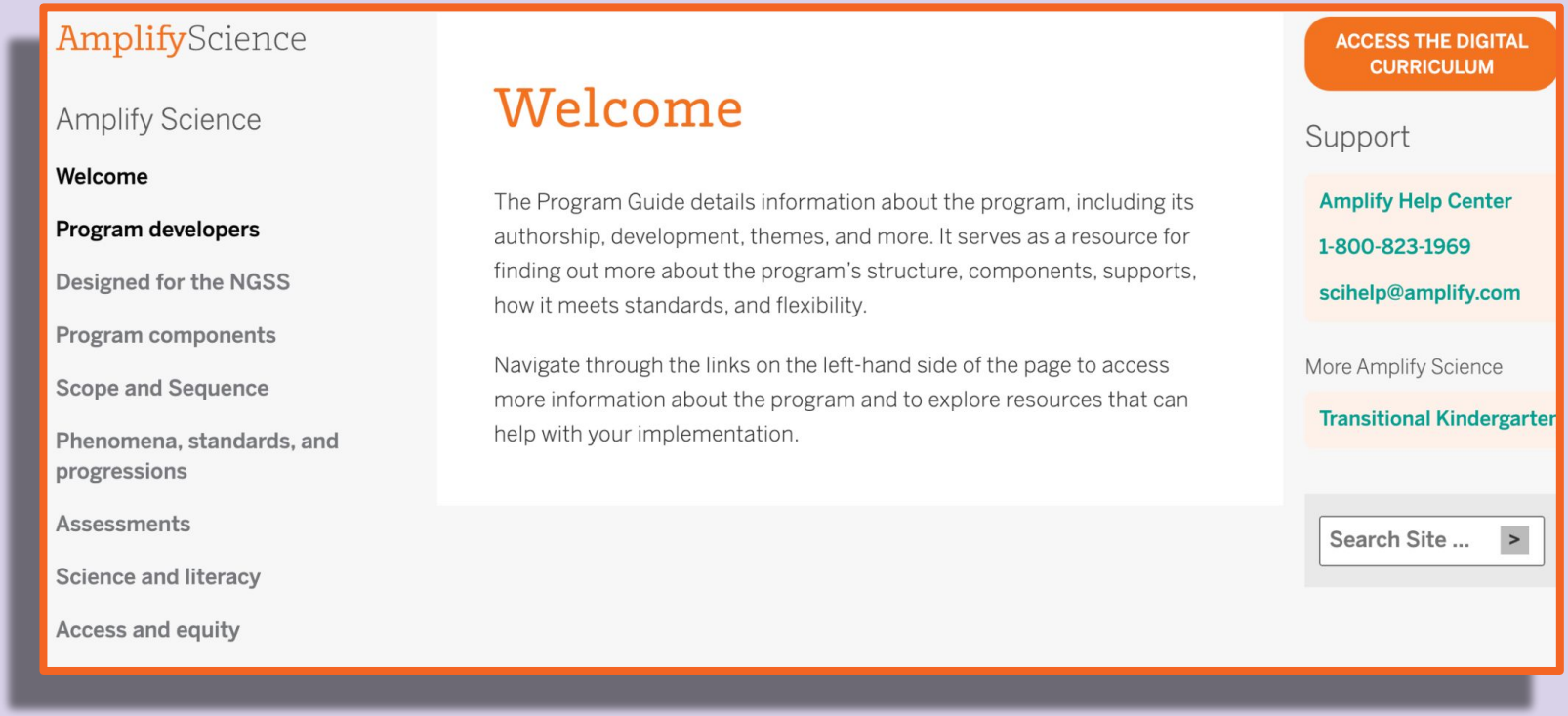
The Amplify Science Program Guide



No Login Required: Bookmark this website!

Amplify.

Access and Equity: Amplify Science Program Guide



Record your findings!

Classwork Help

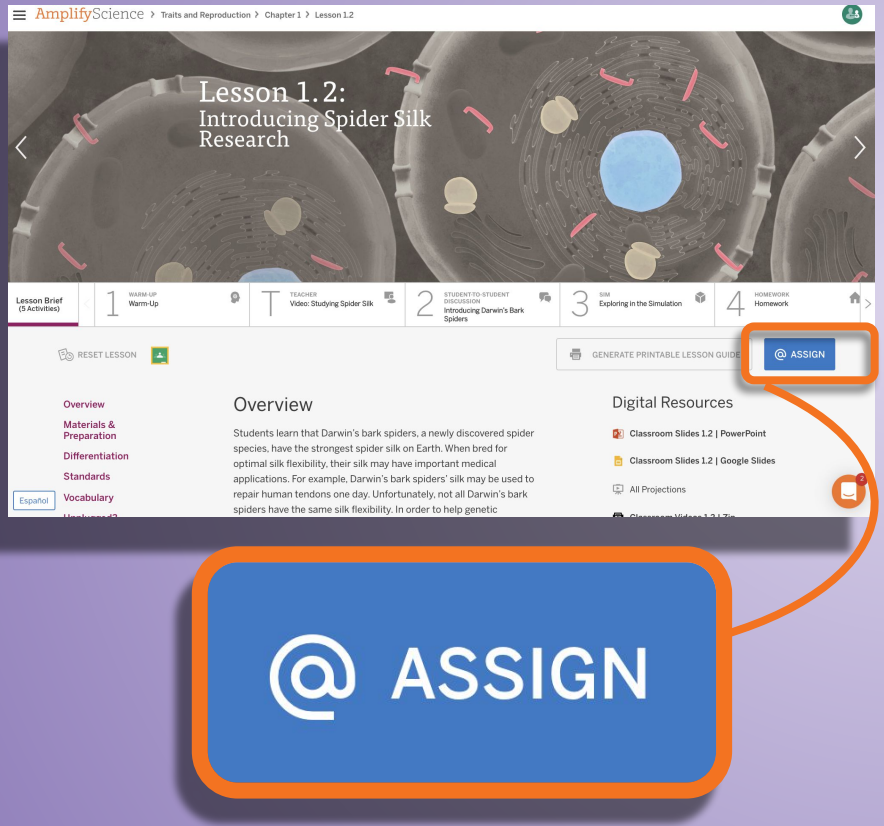
Introduction to Classwork

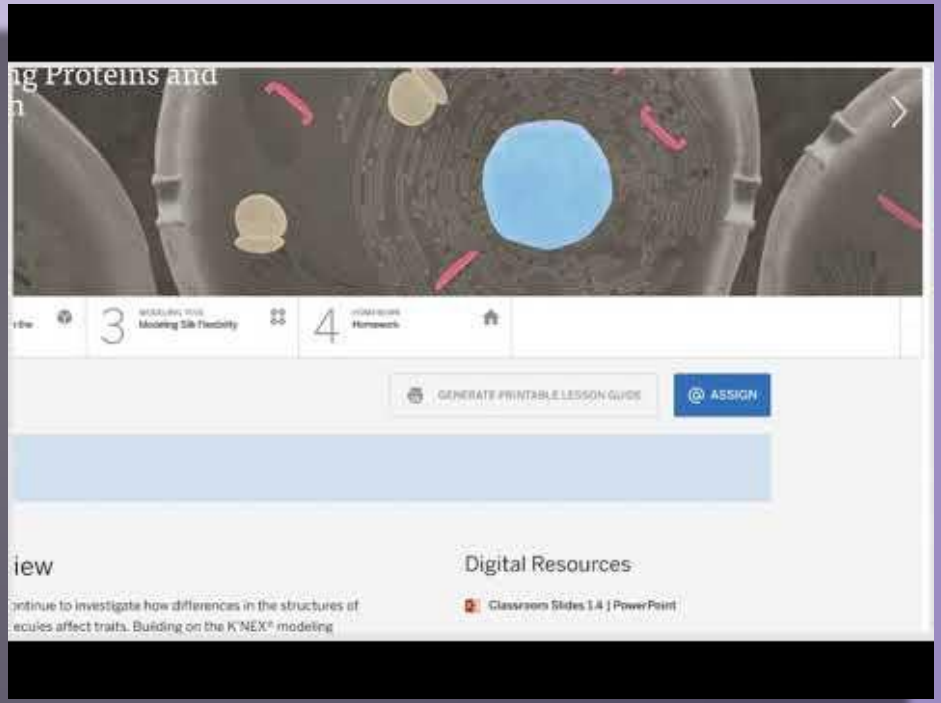
Amplify Science, grades 6-8

Amplify.

September 2020

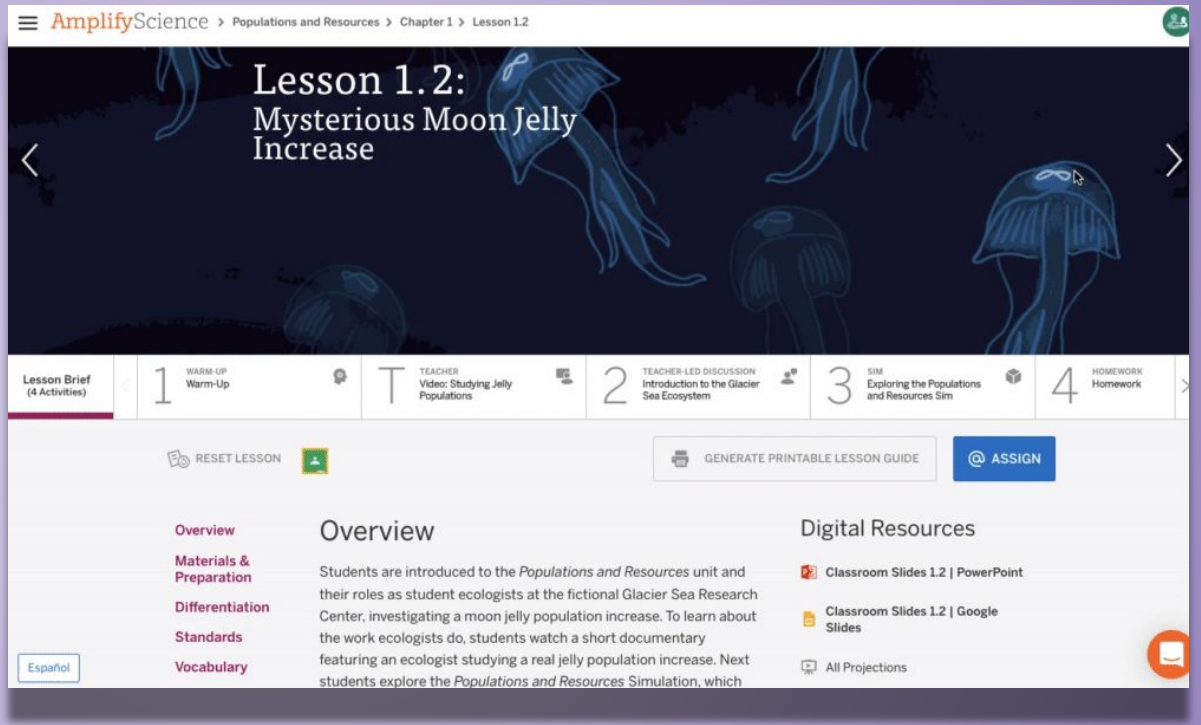
New! Assign in Amplify





Student Status Screen

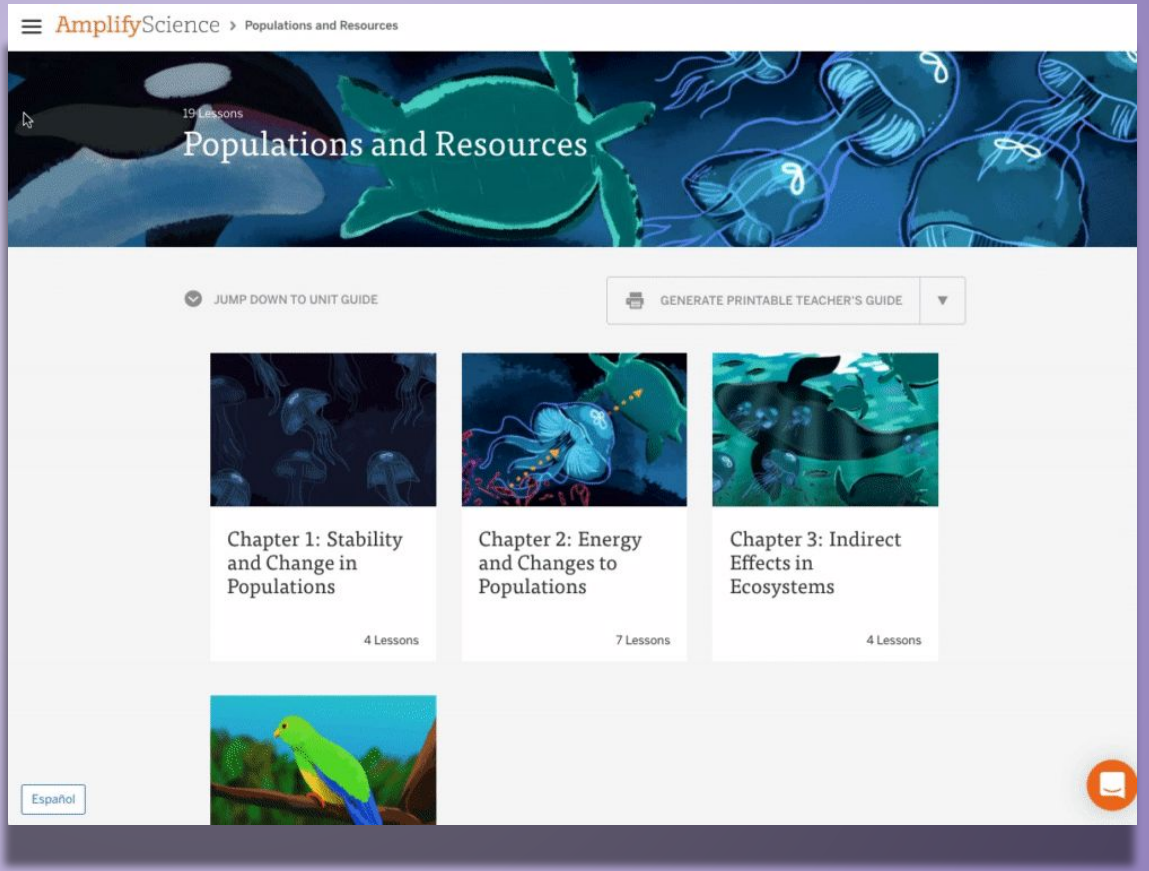
Teacher tip: Use Student Status screen to keep track of where students are in the digital platform while you're teaching, and to see their progress on activities in which they can digitally submit work.



Reporting

The Reporting feature allows you to analyze student performance on Pre-Unit, Critical Juncture, and End-of-Unit Assessments.

You can generate reports on the full class, individual students, or specific assessment items.



Plan for the day

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- Guided Lesson Planning
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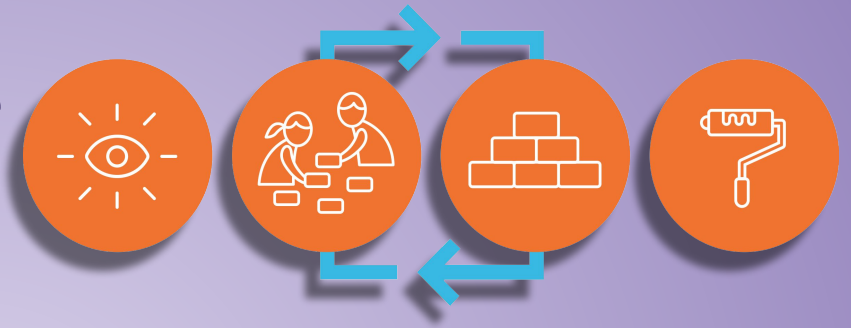
What does this Image represent?



A Amplify Science Approach

B How students build a complex explanation

C How students deepen their understanding

D All of these

What is the first step to the Amplify Science Approach?

A Collect evidence from multiple sources

B Introduce a Phenomenon and/or real world problem

C Apply knowledge to solve different problem

D Build an increasingly complex explanation

Where are differentiation notes for your Unit lessons?

A. Unit Level Materials and Prep

B. Unit Level Science Background

C. Digital TG Lesson Level

D. Teacher Overview

In Chat

What is your number one takeaway from this workshop ?


Questions?

Customer Care

Seek information specific to enrollment and rosters, technical support, materials and kits, and teaching support, weekdays 7AM-7PM EST.

scihelp@amplify.com

800-823-1969

Amplify Chat